

Hardenbol A.A., Kuzmin A., Korhonen L., Korpelainen P., Kumpula T., Maltamo M., Kouki J. (2021). Detection of aspen in conifer-dominated boreal forests with seasonal multispectral drone image point clouds. *Silva Fennica* vol. 55 no. 4 article id 10515. <https://doi.org/10.14214/sf.10515>

Supplementary file S3

Table S3. Confusion matrices performed to separate all four tree species optimized for kappa on the five inventoried dates throughout the thermal growing season based on manual segmentation. Birches refers to silver and downy birch.

Date 1: 2019-05-13		Predicted				Total	Producer's accuracy, %
		European aspen	Birches	Scots pine	Norway spruce		
Observed	European aspen	100	3	0	1	104	96.2
	Birches	3	127	7	7	144	88.2
	Scots pine	1	1	116	0	118	98.3
	Norway spruce	0	1	2	118	121	97.5
Total		104	132	125	126	461	
User's accuracy, %		96.2	96.2	92.8	93.7		94.7

Date 2: 2019-05-22		Predicted				Total	Producer's accuracy, %
		European aspen	Birches	Scots pine	Norway spruce		
Observed	European aspen	85	12	6	0	103	82.5
	Birches	5	137	1	1	144	95.1
	Scots pine	3	0	114	2	119	95.8
	Norway spruce	1	1	1	118	121	97.5
Total		94	150	122	121	454	
User's accuracy, %		90.4	91.3	93.4	97.5		93.2

Date 3: 2019-05-30		Predicted				Total	Producer's accuracy, %
	European aspen	Birches	Scots pine	Norway spruce			
Observed	European aspen	98	3	3	0	104	94.2
	Birches	7	133	2	2	144	92.4
	Scots pine	0	0	117	2	119	98.3
	Norway spruce	1	3	4	113	121	93.4
Total		106	139	126	117	461	
User's accuracy, %		92.5	95.7	92.9	96.6		94.5

Date 4: 2019-06-13		Predicted				Total	Producer's accuracy, %
	European aspen	Birches	Scots pine	Norway spruce			
Observed	European aspen	87	13	2	1	103	84.5
	Birches	14	123	0	6	143	86.0
	Scots pine	0	0	115	4	119	96.6
	Norway spruce	1	2	0	118	121	97.5
Total		102	138	117	129	443	
User's accuracy, %		85.3	89.1	98.3	91.5		91.2

Date 5: 2019-09-27		Predicted				Total	Producer's accuracy, %
	European aspen	Birches	Scots pine	Norway spruce			
Observed	European aspen	83	12	5	0	100	83.0
	Birches	14	112	1	3	130	86.2
	Scots pine	0	0	104	5	109	95.4
	Norway spruce	0	4	2	107	113	94.7
Total		97	128	112	115	406	
User's accuracy, %		85.6	87.5	92.9	93.0		89.8